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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,650	02/06/2004	Isamu Okabe	TWA98USA	8787
270	7590	12/13/2006	EXAMINER	
HOWSON AND HOWSON SUITE 210 501 OFFICE CENTER DRIVE FT WASHINGTON, PA 19034			CHARLES, MARCUS	
			ART UNIT	PAPER NUMBER
			3682	

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary****Application No.**

10/774,650

**Applicant(s)**

OKABE ET AL.

**Examiner**

Marcus Charles

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :05/14/04, 04/04/05, 12/01/05 & 01/03/06.

### **DETAILED ACTION**

This is the first action relating to serial application number 10/774,650 filed 02-06-2004.

Claim 1 is currently pending.

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Drawings***

The examiner has accepted the drawing filed with this application as formal drawing.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ledvina et al (US 5,507,697) in view of McKnight et al (US 4,036,071). Ledvina et al. disclose a roller chain transmission comprising a roller chain having interleaved pairs of inner (20) and outer plates (16), cylindrical bushings (30) fixed to bushing holes in the inner plates (col. 5 lines 50-67), pins (24) rotatable in the bushings and fixed to pin holes in the outer plates (col. 5 lines 50-67), rollers (34) rotatable on the bushings (col. 6 lines 1-10), a toothed sprocket meshing with the roller chain (see Fig 4). Ledvina et al. also discloses a relationship of the outer diameter of the roller, the outer diameter of the pins and height of the plates based on the pitch of the chain (see charts in columns 9 and 10).

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Ledvina et al. do not disclose a relationship of the radius of the sprocket based on the diameter of the rollers. Bowman teaches the relationship of the radius of the sprocket based on the diameter of the rollers (see chart in column 6). Therefore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Ledvina et al. to include the relationship of the radius of the sprocket based on the diameter of the rollers in order to reduce noise.

Ledvina et al. do not disclose the outer diameter D of the rollers, the outer diameter d of the pins and the height H of the inner plates satisfy the following relationships with respect to the pitch P of the roller chain:

$$0.72P \leq D \leq 0.79P$$

$$0.40P \leq d \leq 0.44P$$

$$0.96P \leq H$$

and the sprocket teeth have a tooth gap bottom with a radius R1, satisfying the relationship:

$$0.505D \leq R1 \leq 0.505D + 0.069^3\sqrt{D};$$

the chain entering the side tooth flank radius defined as R2 and the radius of the arc of the chain entering the side of the tooth head portion defined as R3, satisfies the relationships:  $P - (0.505D + 0.069^3\sqrt{D}) \leq R2 \leq P - 0.505^3\sqrt{D}$   $0.08 \leq R3 \leq 0.13P$ .

It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the optimum range of the outer diameter of the rollers, the outer diameter of the pins, the height of the plates based on the pitch of the chain, and the radius of the sprocket based on the diameter of the rollers, the radius of the

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tooth flank and the radius of the arc entering the tooth head portion, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,077,774. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are obvious variants in the breadth and scope.

### ***Citation***


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kaga et al. (US 2004/0171450), Okabe et al. (US

2005/0119079), Allen (5,848,948), Pfrank et al. (3,448,629), Kawashina et al. (4,13,750), Howe (2,117,169), Bowman (3,054,300 and 3,011,356) and McCann (2,431,764) disclose a roller chain and sprocket combination.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcus Charles whose telephone number is (571) 272-7101. The examiner can normally be reached on Monday-Thursday 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ridley Richard can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Marcus Charles  
Primary Examiner  
Art Unit 3682  
December 09, 2006